

[54] CONTAINERS WITH STOPPERS

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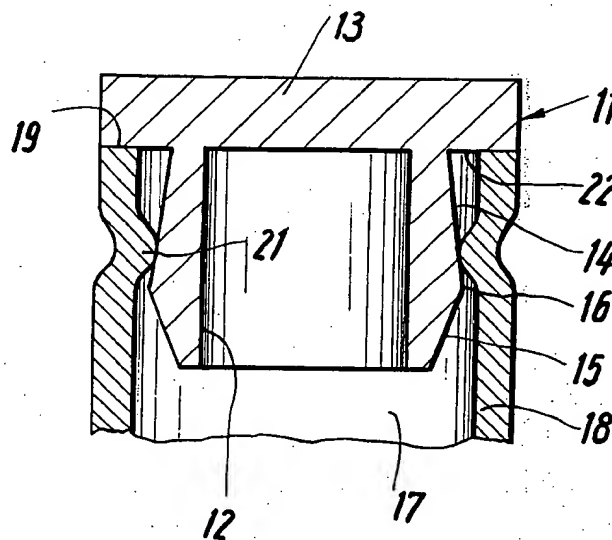
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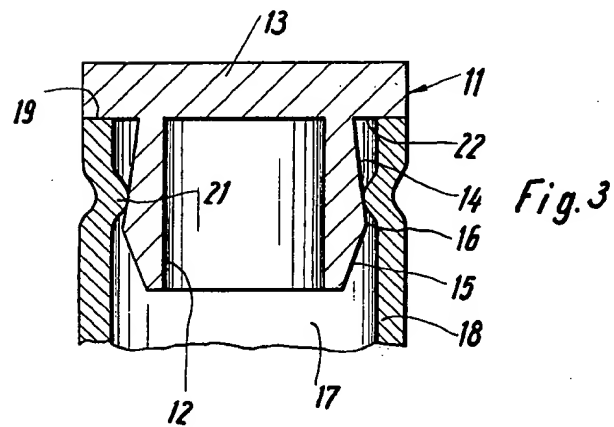
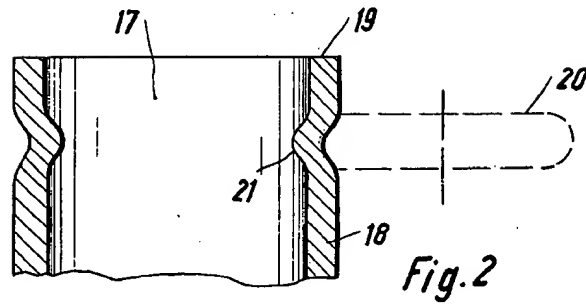
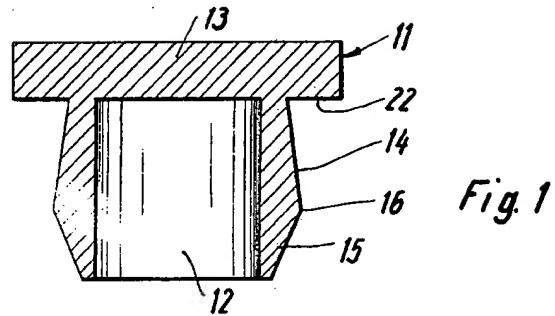
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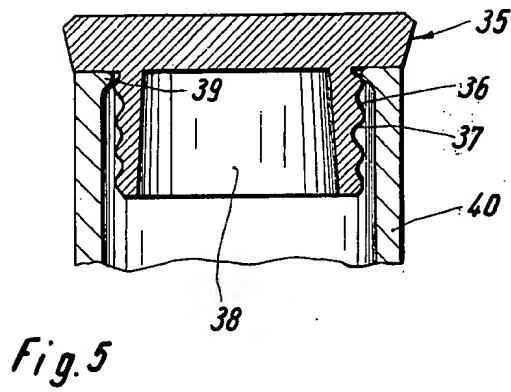
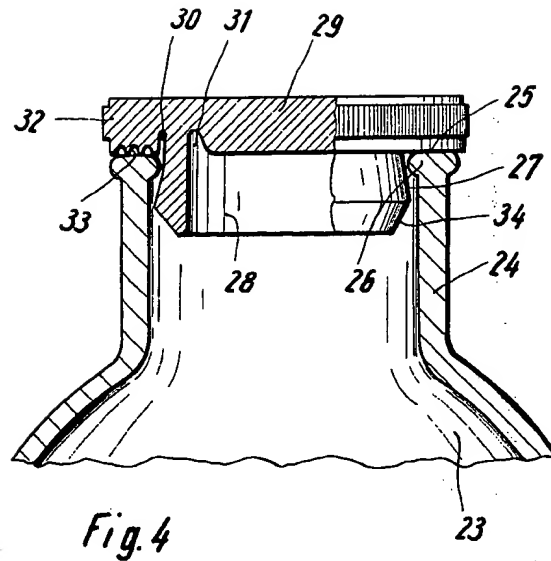
**ABSTRACT**

The invention relates to a container especially in the form of a small glass bottle for storing tablets or the like. The container is combined with a stopper insertable in the cylindrical opening in the container. The stopper has a resilient plug portion widening conically towards the container and then tapering inwardly. This plug portion cooperates with an annular locking means located on the inner wall of the opening. The locking means is formed by a bead against which a section of the resilient plug portion, which widens conically towards the interior of the container bears resiliently in the closed position of the stopper.

2 Claims, 5 Drawing Figures







## CONTAINERS WITH STOPPERS

The invention refers to a container, usually of glass, especially in the form of a small bottle for storing tablets, dragees or the like, with a stopper insertable in a cylindrical opening in the container, which exhibits a resilient plug portion widening conically towards the interior of the container and then tapering in again, which cooperates with an annular locking member arranged on the inner wall of the opening.

Glass containers of the aforesaid kind are known in which the locking member is formed by a recess formed in the inner wall of the neck of a bottle, into which the plug portion, in the zone between its outwardly and inwardly tapering sections, snaps resiliently, so that the crown between the two sections comes to lie in the equatorial plane of the recess. Such known constructions, for various reasons, are not entirely satisfactory. One of the first reasons is that the recesses in the necks of the bottles can form pockets for dirt, which naturally is highly undesirable. Another reason is that it is relatively difficult to form a recess on the inside of the neck of a bottle, since tools are necessary which must be introduced into the inside of the neck of the bottle and there expanded.

The object of the invention is to correct the disadvantages indicated and to produce a glass container with a stopper of the aforementioned kind, which can be simply produced and well cleaned.

This problem is solved in accordance with the invention by the provision of a bottle and stopper in which the locking is accomplished by means of a bead internally of the bottle neck against which the section of a resilient plug portion of the stopper which widens conically towards the interior of the container bears resiliently in the closed position of the stopper.

The construction in accordance with the invention offers the advantage that because of the application of a bead the formation of pockets for dirt in the opening in the glass container is prevented. Since the conically widening portion presses against the bead, the stopper is held securely because the conical portion forms a kind of anchor which tends to pull the stopper inside the container.

In the case of small glass bottles, the bead can be produced by a tool pressing against the outside or face of the neck of the bottle.

The invention will be further described with reference to the attached drawings, in which:

FIG. 1 is the side elevation of a stopper in section,

FIG. 2 is a section through the necklike end of the glass container,

FIG. 3 is the stopper in accordance with FIG. 1 inserted in the glass container in accordance with FIG. 2,

FIG. 4 is a modified embodiment of a glass container with a stopper, and

FIG. 5 is a further modified embodiment of a bottle and stopper combination.

In FIGS. 1 to 3 a stopper is designated generally by 11, which has a plug portion 12 and an upper part 13. The plug portion 12 is resilient and has a section 14 widening conically towards the interior of the container and a section 15 tapering in towards the interior of the container. The sections 14 and 15 form truncated cones which meet at a crown 16.

Referring to FIG. 2, 17 is an opening in the neck 18

of a bottle which has an outer edge 19. Remote from the outer edge 19 the material of the neck 18 of the bottle is forced inwards by a roller tool 20, indicated in broken line, so that an internal bead 21 is formed.

FIG. 3 shows the stopper 11 inserted into the neck of the bottle. It can be seen that the bead 21 rests resiliently against the outwardly tapering section 14 of the plug portion 12, that is, remote from the crown 16. Since the section 14 forms a kind of inclined plane the stopper is pulled into the interior of the container, its annular flange 22 being pressed against the outer edge 19 of the neck 18 of the bottle. By selecting a suitable offset between the crown 16 and the crown of the bead 21 care can be taken that the stopper 11 in the event of an overpressure arising inside the container can make a limited compensating movement. During this compensating movement the force which holds the stopper in the neck 18 of the bottle continually increases.

FIG. 4 shows a bottle 23 for storing tablets, dragees or the like, the neck 24 of which bottle is widened at the outer edge 25 and forms an internal annular bead 26. Against the bead 26 rests a widening section 27 of a plug portion 28. For increasing the resilience of the plug portion 28 the upper part 29 of the stopper in the zone of its transition into the plug portion 28 is provided with annular recesses 30 and 31. The upper part 29 is also formed with an annular flange 32 which, however, is equipped on its surface facing the container with resiliently deformable ribs 33. The insertion of the plug portion 28 is facilitated by an inwardly tapering section 34 of the plug portion, which adjoins the section 27.

Whilst the embodiments, so far described have had stoppers with one section widening out and one tapering in, respectively, the stopper 35, in accordance with FIG. 5, is equipped with a number of widening sections 36 and inwardly tapering sections 37. If a tablet bottle of the kind displayed in FIG. 5, is taken from a cool to a warm environment the air present inside the container can expand a certain amount without the stopper 35 coming completely out. On the contrary, with increasing expansion, sections 36 of the plug portion 38 lying further down come into contact with the bead 39 in the neck 40 of the bottle.

I claim:

1. A glass bottle for storing tablets, dragees or the like in combination with a resilient stopper insertable in a cylindrical opening in the bottle, said stopper having a resilient plug portion widening conically towards the interior of the bottle and then tapering inwardly again, said plug portion cooperating with an annular locking means arranged on the inner wall of the opening, said locking means being a bead against which a section of the resilient plug portion which widens conically towards the interior of the bottle bears resiliently in the closed position of the stopper, the bead and the wall adjacent thereto being of substantially the same thickness, the bead thus forming not only a locking means on the inner wall but also an annular groove on the outer side of the bottle.

2. A glass bottle as claimed in claim 1 wherein the bead has been formed by pressing inwardly from the exterior of the bottle.

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